CLAIMS

1. (Currently Amended) A clamping system for securing a first surface of a work piece against a frame, the clamping system comprising:

a plurality of end supports, each of the end supports being configured to be coupled to an anchor;

one or more force applying units, each of the force applying units ~~unit~~ including a body and a plunger movably coupled to the body and adapted to apply a clamping force to a second surface of the work piece to secure the first surface of the work piece against the frame; and

one or more coupling units linked with the one or more force applying units forming a chain of force applying units and coupling units between the plurality of end supports to support the force applying units against a second surface of the work piece opposite the first surface, each coupling unit including a lockable pivot, the lockable pivot adapted to pivot to conform the chain to a surface of the work piece when unlocked, and adapted to be locked when at least one of the force applying units applies the clamping force to the work piece.

2. (Original) The clamping system of Claim 1, wherein the lockable pivot includes a bendable elbow.

3. (Withdrawn) The clamping system of Claim 2, wherein the bendable elbow includes interlocking teeth, arranged to interlock when the lockable pivot is locked.

4. (Original) The clamping system of Claim 1, wherein the lockable pivot includes a ball and socket.

5. (Withdrawn) The clamping system of Claim 1, wherein the lockable pivot is manually lockable.

6. (Withdrawn) The clamping system of Claim 5, wherein the lockable pivot includes a twist to lock mechanism.

7. (Original) The clamping system of Claim 1, wherein the lockable pivot is externally powered.

8. (Original) The clamping system of Claim 1, wherein the lockable pivot unit is electrically powered.

9. (Withdrawn) The clamping system of Claim 1, wherein the lockable pivot unit is hydraulically powered.

10. (Withdrawn) The clamping system of Claim 1, wherein the lockable pivot unit is pneumatically powered.

11. (Original) The clamping system of Claim 1, wherein the lockable pivot includes a solenoid.

12. (Original) The clamping system of Claim 1, wherein the force applying unit includes a threaded plunger, threadedly connected with the body.

13. (Withdrawn) The clamping system of Claim 1, wherein the force applying unit is manually operated.

14. (Original) The clamping system of Claim 1, wherein the force applying unit is externally powered.

15. (Original) The clamping system of Claim 1, wherein the force applying unit is electrically powered.

16. (Withdrawn) The clamping system of Claim 1, wherein the force applying unit is hydraulically powered.

17. (Withdrawn) The clamping system of Claim 1, wherein the force applying unit is pneumatically powered.

18. (Withdrawn) The clamping system of Claim 1, further comprising:

at least one length adjusting unit attached to and interspersed with the one or more force applying units and the one or more coupling units, the length adjusting unit arranged to adjustably change length to adjust a length of the chain.

19. (Withdrawn) The clamping system of Claim 18, wherein the length adjusting unit is externally powered.

20. (Withdrawn) The clamping system of Claim 18, wherein the length adjusting unit includes a turnbuckle.

21. (Currently Amended) A clamping system for securing a first surface of a work piece against a frame during manufacturing, the clamping system comprising:

a plurality of end supports, each of the end supports being configured to support the clamping system against the work piece;

one or more externally powered force applying units, each powered force applying unit including a body and a plunger movably attached to the body arranged to apply a clamping force to a work piece; and

one or more elbow units, each elbow unit including a lockable pivot, attached to and interspersed with the one or more force applying units forming a chain of force applying units and elbows between the plurality of end supports, the lockable pivot arranged to pivot to conform the chain to a surface of the work piece when unlocked, and arranged to lock when the force applying unit applies the clamping force to the work piece.

22. (Withdrawn) The clamping system of Claim 21, wherein the bendable elbow includes interlocking teeth, arranged to interlock when the lockable pivot is locked.

23. (Withdrawn) The clamping system of Claim 21, wherein the lockable pivot is manually lockable.

24. (Withdrawn) The clamping system of Claim 23, wherein the lockable pivot includes a twist to lock mechanism.

25. (Original) The clamping system of Claim 21, wherein the lockable pivot is externally powered.

26. (Original) The clamping system of Claim 21, wherein the lockable pivot is electrically powered.

27. (Withdrawn) The clamping system of Claim 21, wherein the lockable pivot is hydraulically powered.

28. (Withdrawn) The clamping system of Claim 21, wherein the lockable pivot is pneumatically powered.

29. (Original) The clamping system of Claim 21, wherein the lockable pivot includes a solenoid.

30. (Original) The clamping system of Claim 21, wherein the force applying unit is includes a threaded plunger, threadedly connected with the body.

31. (Original) The clamping system of Claim 21, wherein the force applying unit is electrically powered.

32. (Withdrawn) The clamping system of Claim 21, wherein the force applying unit is hydraulically powered.

33. (Withdrawn) The clamping system of Claim 21, wherein the force applying unit is pneumatically powered.

34. (Withdrawn) The clamping system of Claim 21, further comprising:

at least one length adjusting unit attached to and interspersed with the one or more force applying units and the one or more coupling units, the length adjusting unit arranged to adjustably change length to adjust a length of the chain.

35. (Withdrawn) The clamping system of Claim 34, wherein the length adjusting unit is externally powered.

36. (Withdrawn) The clamping system of Claim 34, wherein the length adjusting unit includes a turnbuckle mechanism.

37. (Withdrawn) A clamping system for manufacturing, the clamping system comprising:

one or more force applying units, each force applying unit including a body and a plunger movably attached to the body arranged to apply a clamping force to a work piece; and

one or more multi-axis pivot units, each multi-axis pivot unit including a lockable multi-axis pivot, attached to and interspersed with the one or more force applying units forming a chain of force applying units and pivot units, the lockable multi-axis pivot arranged to pivot in a plurality of axes to conform the chain to a surface of the work piece when unlocked, and arranged to lock when at least one of the one or more force applying units applies the clamping force to the work piece.

38. (Withdrawn) The clamping system of Claim 37, wherein the lockable multi-axis pivot includes interlocking teeth, arranged to interlock when the lockable multi-axis pivot is locked.

39. (Withdrawn) The clamping system of Claim 37, wherein the lockable multi-axis pivot includes a ball and socket.

40. (Currently Amended) A clamping system for manufacturing, the clamping system comprising:

one or more force applying units, each force applying unit including a body and a force applying member movably attached to the body arranged to apply a clamping force to a work piece, wherein the force applying members are configured to be laterally simultaneously motivated by an externally-powered force unit that drives the force applying member relative to the body; and

one or more coupling units operatively coupled to the force applying units, each coupling unit including a movable pivot, attached to and interspersed with the one or more force applying units forming a chain of force applying units and coupling units.

41. (Original) The clamping system of Claim 40, wherein the movable pivot includes a bendable elbow.

42. (Original) The clamping system of Claim 40, wherein the pivot includes a ball and socket.

43. (Withdrawn) The clamping system of Claim 40, wherein the force applying unit is manually operated.

44. (Canceled).

45. (Original) The clamping system of Claim 40, wherein the force applying unit is electrically powered.

46. (Withdrawn) The clamping system of Claim 40, wherein the force applying unit is hydraulically powered.

47. (Withdrawn) The clamping system of Claim 40, wherein the force applying unit is pneumatically powered.

48. (Withdrawn) The clamping system of Claim 40, further comprising:

at least one length adjusting unit attached to and interspersed with the one or more force applying units and the one or more coupling units, the length adjusting unit arranged to adjustably change length to adjust a length of the chain.

49. (Withdrawn) The clamping system of Claim 48, wherein the length adjusting unit is externally powered.

50. (Withdrawn) The clamping system of Claim 48, wherein the length adjusting unit includes a turnbuckle mechanism.

51. (Withdrawn) The clamping system of Claim 40, further comprising:

a first end support attached to a first end of the chain, arranged to securely hold the first end of the chain when the clamping force is applied; and

a second end support attached to a second end of the chain, arranged to securely hold the second end of the chain when the clamping force is applied.

52. (Currently Amended) A clamping system for clamping a work piece during manufacturing, the system comprising:

one or more force applying means arranged to apply a clamping force to the work piece, wherein the force applying means are configured to be laterally simultaneously motivated by an externally-powered means for powering the force applying means configured to drive the force applying member relative to the body; and

one or more pivoting means arranged in a chain with the one or more force applying means, the pivoting means arranged to pivot to conform the chain to a surface of the work piece.

53. (Original) The apparatus of Claim 52, further comprising means for powering the force applying means.

54. (Original) The apparatus of Claim 52, further comprising means for locking the pivoting means.

55. (Original) The apparatus of Claim 54, further comprising means for powering the means for locking the pivoting means.

56. (Withdrawn) The apparatus of Claim 52, further comprising at least one length adjusting means, arranged in the chain with the one or more force applying means and the one or more pivoting means to adjust the length of the chain.

57. (Withdrawn) A method for clamping during a manufacturing operation on a work piece, comprising:

positioning a chain of a one or more coupling units and one or more force applying units against the work piece thereby conforming the chain to a surface contour of the work piece; and

applying clamping force to the work piece along the chain by engaging the force applying units.

58. (Withdrawn) The method of Claim 57, further comprising locking at least one of the one or more coupling units with the chain conforming to the surface contour.

59. (Withdrawn) The method of Claim 57, further comprising tensioning the chain across the workpiece.

60. (Withdrawn) The method of Claim 57, further comprising adjusting the length of the chain.